

Appendix A. An overview of biological inventories for all taxa within the San Francisco Bay Area Network of parks.

### Golden Gate National Recreation Area

Established: 1972

Size: 73,960 acres

#### Amphibians, Reptiles, and Mammals

Recently a long-term inventory of terrestrial vertebrates has been completed. Given the scope and length of this study, the representation of terrestrial vertebrates is considered to be current and nearly complete. Several studies have been conducted on individual species. Studies of specific mammalian species focus on mountain lions, bobcats, coyotes, feral pigs, and gray whales. Extensive species lists also exist from a natural resource inventory of the Presidio of San Francisco (PRES) and a 1993 survey of herpetofauna. Several studies focus on particular species, such as the California red-legged frog and the San Francisco garter snake.

*Howell, J.A. et al. California Fish and Game. Volume 8.4. Spring 1998. Number 2.*

*Jones & Stokes Associates, Inc. Presidio of San Francisco Natural Resource Inventory and Vegetation Management Options. January 1998. 300+ pages.*

*Semenoff-Irving, Marcia. Inventory and Monitoring of Terrestrial Vertebrates within the Golden Gate National Recreation Area, 1990 - 1997. 1998. 1 page. Golden Gate Field Station, USGS-WERC, Fort Cronkhite, Building 1063, Marin Headlands, Sausalito, CA 94965.*

*Ely, Ed. Sensitive species herpetological survey, Golden Gate National Recreation Area, 1993. October 1993.*

*Cook, David. California red-legged frog and bullfrog-tadpole trapping, egg mass, and frog surveys. August 1998. Fort Cronkhite, Building 1061, Office of Aquatic Ecologist, GGNRA, Natural Resources, Marin Headlands, Sausalito, CA.*

*Tennessee Valley: California red-legged frog breeding survey report. 1997. 10+ pages.*

*Fong, Darren. Winter 1998 - 2000 Frog Breeding Survey, Golden Gate National Recreation Area. April 2000. 33 pages. Fort Cronkhite, Building 1061, Office of Aquatic Ecologist, GGNRA, Natural Resources, Marin Headlands, Sausalito, CA.*

*Philip Williams & Associates, Ltd. Summary of existing and historic conditions at Big Lagoon. October 1993. 137 pages.*

*San Francisco Planning Department. Peninsula Watershed Management Plan: Draft Environmental Impact Report. December 1999.*

#### Birds

Several organizations dedicated to avian research within the Bay Area provide thorough species lists for GOGA. Point Reyes Bird Observatory (PRBO) has conducted research within the park including studies on passerine species and seabirds at Alcatraz Island. GOGA is currently participating in inventory and monitoring efforts in conjunction with PRBO to document avian species distribution, relative abundance, and species richness and diversity in the major habitats of the park, including the Presidio. There is also a study monitoring long-term breeding bird response to riparian restoration efforts.

The Golden Gate Raptor Observatory documents the fall migration of raptors and has compiled *The Marin Headlands Bird Checklist*, a species list for raptors as well as shorebirds, seabirds, and songbirds found in the Marin

Headlands of GOGA. A species list was also obtained from PRES, which contained detailed information on species habitat preference, abundance, and nativity. The Gulf of the Farallones Marine Sanctuary (GFNMS) maintains a record of species encountered during Beach Watch surveys, most of which are avian species. Several recent studies within GOGA have focused on specific avian species, including western snowy plovers, bank swallows, northern spotted owls, black-crowned night herons, brown-headed cowbirds and white-crowned sparrows.

*Golden Gate National Parks Association. Marin Headlands Bird Checklist. May 1999. 8 pages. Golden Gate Raptor Observatory, Fort Cronkhite, Building 1064, Marin Headlands.*

*Gardali, Thomas and Geupel, Geoffrey R. Point Reyes Bird Observatory. Songbird inventory and monitoring at Golden Gate National Recreation Area, 1997. December 1997. 30+ pages. Fort Cronkhite, Building 1061, GGNRA, Office of Wildlife Specialist.*

*Carre, Brett. Alcatraz Bird Census: The ABC Program (September 1998 through January 1999). 1999. 23 pages. Fort Cronkhite, Building 1061, Office of Wildlife Management, GGNRA, Natural Resources, Marin Headlands, Sausalito, CA.*

*Jones & Stokes Associates, Inc. Wildlife of the Presidio of San Francisco. September 1994. 11 pages.*

*White, Jennifer D. Bird Inventory of Three National Parks of San Francisco Bay Area: Wintering Waterbirds and Shorebirds. Point Reyes Bird Observatory. 1999. 40 pages.*

#### Fish:

Few studies provide a comprehensive species list for all regions of the park. There are some reports, however, that focus on particular species of fish such as the tidewater goby, coho salmon, or steelhead trout. Sampling and/or monitoring surveys have been conducted for Bolinas Lagoon, Rodeo Lagoon, Tomales Bay, Redwood Creek, Lagunitas Creek as well as north district ponds. Intertidal and nearshore fish and invertebrate communities of Ocean Beach have also been surveyed. The California Department of Fish and Game and the City and County of San Francisco has conducted fish surveys as well.

*Fong, Darren. 1997-1998 Tidewater Goby (Eucyclogobius newberryi) Sampling in Rodeo Lagoon, Golden Gate National Recreation Area, Marin Co. April 1999. 45 pages. Fort Cronkhite, Building 1061, GGNRA Natural Resources, Sausalito, CA, Office of Aquatic Ecologist.*

*Emig, John W., State of California, The Resources Agency, Department of Fish and Game. Fish population survey, Lagunitas Creek drainage, Marin County, 1982. California Department of Fish and Game. 1985. Administrative Report No. 85-05. 26 pages.*

*Smith, Ronald W., et al. Coho and Steelhead Restoration Project: Golden Gate National Recreation Area, Point Reyes National Seashore, Muir Woods National Monument: Annual Coho Salmon Spawner Survey Report 1997-98. Coho and Steelhead Restoration Project (CSRP). March 1999. 50+ pages. CSRP Office, Resource Management Building, Point Reyes National Seashore, Point Reyes Station, CA 94956.*

*Wang, Johnson C. S. On the ecological status of the tidewater goby, Eucyclogobius newberryi (Girard), in a lagoon and lake of the Golden Gate National Recreation Area. University of California, Davis: Institute of Ecology, University of California, Davis. February 1984. Cooperative National Park Resources Studies Unit, Technical Report No. 15, Contribution No. CPSU/UCD 337/1. 25 pages.*

*Bratovich, Paul M. and Kelley, Don W. Investigations of salmon and steelhead in Lagunitas Creek, Marin County California, Volume I: Migration, spawning, embryo incubation and emergence, juvenile rearing, emigration. D.W. Kelley & Associates. March 1988. 187 pages.*

*Smith, Jerry J. Distribution and Abundance of Coho and Steelhead in Redwood Creek in Fall 1998. December 1998. 12 pages.*

Plants:

A habitat restoration database provides a list of vascular plants for all of GOGA and is further broken down by distinct areas of the park. The database is still being updated at this time, but provides an extensive inventory of plants in GOGA. The habitat restoration program includes many other vegetation monitoring segments, such as mapping, photo monitoring, outplant survivorship monitoring, vegetation assemblage monitoring in re-created dune sites, rare plant monitoring, endangered mission blue butterfly & associated vegetation monitoring, seed collection from native plant species, and vegetation community classification.

### Point Reyes National Seashore

Established: 1962

Size: 71,046 acres

Amphibians, Reptiles, and Mammals:

A comprehensive inventory of herpetofauna has not been conducted at this time. Currently, an inventory and assessment of amphibians and reptiles, focusing on the California red-legged frog, is being conducted.

Although a species list exists of terrestrial mammals thought to occur in the park, photographic records and slides provide some of the best evidence for terrestrial mammalian species within Point Reyes. The exotic deer and re-introduced tule elk populations have also been studied closely. Current inventory and monitoring efforts are focused on terrestrial mammal surveys, including mountain beaver distribution and ecology, assessment of bats, surveys of rare animals, and monitoring of TES animals.

Several marine mammal studies have focused on the pinnipeds at Point Reyes, particularly harbor seals, northern elephant seals, and sea lions. Fifteen years of data have documented the presence of cetaceans in the region, including PORE. Some current projects include monitoring of northern elephant seals and developing a marine mammal monitoring protocol.

*Fellers, Gary M. and Pratt, David. Wildlife Photographs Taken with Remote-Triggered Cameras. Various dates photographs; album.*

Birds:

PRBO maintains a list of species that have been banded at Palomarin Field Station since 1970, accounting for a majority of passerine species thought to occur in the park. PRBO also conducted a wetland census of aquatic birds in 1989. A checklist of PORE birds by Rich Stallcup also contains songbirds, seabirds and shorebirds, identifying 470 species in the park. PORE is also participating in inventory and monitoring efforts in conjunction with PRBO to document avian species distribution, relative abundance, and species richness and diversity in the major habitats of the park. The GFNMS includes PORE in Beach Watch surveys and was able to provide a list of species encountered within park boundaries. Other references originated from studies conducted on specific species such as snowy plovers, common murres, marbled murrelets, and northern spotted owls. Birds are well represented by inventory and research efforts. Currently a marine bird monitoring protocol is in development and other projects focus on neotropical migratory birds, snowy plover monitoring, and common raven distribution.

*Stallcup, Richard W. Field checklist of birds Point Reyes National Seashore. Point Reyes Bird Observatory. 15+ pages.*

Note: no indication of date on pamphlet

*DeSante, David F. and Geupel, Geoffrey R. Landbird productivity in Central Coastal California: Relationship to annual rainfall and a reproductive failure in 1986. Condor 89: pp.636 – 653. 1987.*

*Point Reyes Bird Observatory. Waterbirds at Point Reyes. Western Birds, Vol. 20 #4. 1989.*

*Gulf of the Farallones National Marine Sanctuary. Beachcast Taxon List for Point Reyes National Seashore. June 2000. 264 pages. Gulf of the Farallones National Marine Sanctuary, Presidio Building 991.*

*White, Jennifer D. Bird Inventory of Three National Parks of San Francisco Bay Area: Wintering Waterbirds and Shorebirds. Point Reyes Bird Observatory. 1999. 40 pages.*

#### Fish:

Most studies on fish in Point Reyes focus on certain species with special emphasis on coho salmon and steelhead trout. Additionally, there have been recent studies of tidewater goby and fish in Drake's Estero.

*Smith, Ronald W., et al. Coho and Steelhead Restoration Project: Golden Gate National Recreation Area, Point Reyes National Seashore, Muir Woods National Monument: Annual Coho Salmon Spawner Survey Report 1997-98. Coho and Steelhead Restoration Project (CSRP). March 1999. 50+ pages. CSRP Office, Resource Management Building, Point Reyes National Seashore, Point Reyes Station, CA 94956.*

#### Plants:

The plant checklist for Point Reyes flora has been recently updated, incorporating all observed species in the park. The inventory of vascular plant species is considered up-to-date and comprehensive, with the exception of aquatic vascular plants.

*Fellers, Gary M.; Norris, Virginia; Folette, Wilma, and Smith, Doreen. Plant Checklist for Point Reyes National Seashore (Revised). 2000. 48 pages.*

### **Pinnacles National Monument**

Established: 1908

Size: 24,000 acres

Park naturalist Roland Wauer conducted an early survey of all vertebrates at PINN in 1958.

*Wauer, Roland. A General Report on the Vertebrates of Pinnacles National Monument. 1958. 47 pages.*

Fauna that has received recent attention is the insect population. Messinger and Griswold conducted a bee inventory in 1999 that includes 420 species of bees.

*Messinger, Olivia and Griswold, Terry. Summarizing Report of a Faunal Survey of the Bees in Pinnacles National Monument. 1998. 9 pages.*

#### Amphibians and Reptiles:

Some species lists have been compiled for the terrestrial vertebrates of PINN, and these are the sole references for herpetofauna inventories.

*Banta, Benjamin H. and Morafka, David J. An Annotated Checklist of Amphibians and Reptiles – Pinnacles National Monument, San Benito County, California. Pinnacles National History Association, September 1969.*

*Fellers, Gary M. and Arnold, Brian W. A Checklist of Amphibians, Reptiles, and Mammals of Pinnacles National Monument, California. Tucson, AZ: Southwest Parks & Monuments Association. 1992.*

*Pinnacles National Monument. Inventory and Monitoring of Reptiles and Amphibians. May 1999. 5 pages. Pinnacles National Monument, Resource Management Building.*

Birds:

A checklist of species is available for PINN that is the only existing inventory for birds. Observations have also been made on the raptor population focusing on breeding, migration, and possible effects of rock climbers.

*Avery, Michael L. and van Riper, Charles III. A Checklist of the Birds of Pinnacles National Monument. Tucson, AZ: SPMA. 1994.*

*Imberski, Monique. 1998 breeding season report. 1998. 15 pages.*

*1998 North Chalone Peak Hawk Watch Fall Migration Summary at Pinnacles National Monument. 1998. 10+ pages. Pinnacles National Monument, Resource Management Building.*

Fish:

All fish references were found in an integrated pest management (IPM) plan for PINN. An inventory of fish does not exist for PINN.

*Pinnacles National Monument. IPM Action Plan and Annual Work Plan for Exotic Fish in Pinnacles National Monument. May 1999. 3 pages. Pinnacles National Monument, Resource Management Building.*

Mammals:

A checklist for mammals has been compiled and provides one of the few inventories of mammalian species. There has been special focus on PINN's unique bat population and management of feral pigs.

*Fellers, Gary M. and Arnold, Brian W. A Checklist of Amphibians, Reptiles, and Mammals of Pinnacles National Monument, California. Tucson, AZ: Southwest Parks & Monuments Association. 1992.*

*Fellers, Gary M. and Arnold, Brian W. The small mammal community at Pinnacles National Monument. Davis, CA: Cooperative National Park Resources Studies Unit, University of California at Davis. January 1988. Technical Report No. 28. 88 pages.*

*Pierson, Elizabeth D. and Rainey, William E. Distribution, Habitat Associations, Status, and Survey Methodologies for Three Molossid Bat Species (*Eumops Perotis*, *Nyctinomops femorosaccus*, *Nyctinomops macrotis*) and the Vespertilionid (*Euderma maculatum*) Final Report. April 1998. 61 pages. Pinnacles National Monument, Resource Management Building.*

Plants:

There is a database of vascular plant species for PINN, which is considered current and nearly complete, but excludes the new lands. A printed checklist contains most of these species. A preliminary lichen inventory has also been conducted, as they are a unique feature of the park's landscape.

*Leatherman, Thomas C. A Checklist of Plants of Pinnacles National Monument, California. Tucson, AZ: Southwest Parks & Monuments Association. 1996.*

### **Muir Woods National Monument**

Established: 1908

Size: 554 acres

Amphibians, Reptiles and Fish:

Few references exist for species of fish and herpetofauna within Muir Woods. A complete inventory is in progress at this time. A separate California giant salamander inventory has been conducted recently.

*Smith, Ronald W., et al. Coho and Steelhead Restoration Project: Golden Gate National Recreation Area, Point Reyes National Seashore, Muir Woods National Monument: Annual Coho Salmon Spawner Survey Report 1997-98. Coho and Steelhead Restoration Project (CSRP). March 1999. 50+ pages. CSRP Office, Resource Management Building, Point Reyes National Seashore, Point Reyes Station, CA 94956.*

#### Birds:

Studies by PRBO have focused on the passerine community of Muir Woods and offer suggestions for long-term monitoring procedures. Northern spotted owl monitoring at MUWO has also occurred in recent years. A marbled murrelet and landbird inventory began in 1997 and was completed in 1999.

*Gardali, Thomas and Geupel, Geoffrey R. (Point Reyes Bird Observatory). Bird Monitoring in the Muir Woods National Monument: summary of results from 1997 - 1999 and suggested long-term monitoring plan. May 2000. 30 pages. Golden Gate National Recreation Area, Fort Cronkhite, Building 1061, Office of Wildlife Ecologist, Sausalito, CA.*

#### Mammals:

An inventory of sensitive mammalian species has been completed. Another recent inventory focused on bat species within Muir Woods. There have also been surveys for Point Reyes mountain beaver inventory, though none were found.

*Heady, Paul. Bat Inventory of Muir Woods National Monument. 1999.*

*Howell, Judd A.; Ettlinger, Eric; Semenoff-Irving, Marcia; and Stout, Shannon. Muir Woods inventory of sensitive species in old growth forest: Mammalian Inventory, Summer 1997, Winter 1998. 1998. 14 pages.*

#### Plants:

Plant checklists exist for Muir Woods; however, most are not recent. The GGNRA habitat restoration database includes a more recent species list for Muir Woods. Given the unique habitat of redwood forests, further investigation into the canopy of the forest is warranted before inventories are considered complete.

### **John Muir National Historic Site**

Established: 1964

Size: 345 acres

#### Mammals, Amphibians, Reptiles, and Fish:

No inventories of mammals, amphibians, reptiles, or fish exist for JOMU.

#### Birds:

There are bird checklists for John Muir, although a systematic inventory has not been conducted.

*Abel, Cheryl and John Muir National Historic Site. A Partial Listing of Birds of Mount Wanda. April 1999. 91 pages.*

*Davis, John and John Muir National Historic Site. John Muir National Historic Site Bird List. 2 pages.*

#### Plants:

A flora inventory of Mount Wanda has been taken in addition to lists of cultivated species and integrated pest management plans that exist for the orchards and gardens of JOMU.

*Hunter, John C., Veirs, Stephen D., and Reeburg, Paul. The flora, vegetation, and human use of Mt. Wanda, John Muir National Historic Site, Martinez, California [DRAFT]. January 1993. 48 pages.*

### **Eugene O'Neill National Historic Site**

Established: 1976

Size: 13 acres

The only references that exist for Eugene O'Neill are a historic record of species cultivated in the courtyard and a management plan for the park. There have been no natural resource inventories of existing species.

*Eugene O'Neill National Historic Site. Plants named in Carlotta O'Neill's diaries 1938-1944. 4 pages. Superintendent, Eugene O'Neill National Historic Site, 4202 Alhambra Ave, Martinez, CA 94553.*

*Fuller, Glen, Superintendent. Cultural and Natural Resources Management Plan – Eugene O'Neill National Historic Site.*